approach

JANUARY 1977 THE NAVAL AVIATION SAFETY REVIEW

By Richard P. Shipman
Naval Safety Center

THE SAFETY STANDDOWN:

Has it outlived

"NOT another safety standdown! I'm so sick of hearing the same old lectures, watching the same obsolete movies, and being bored all day long that I could croak. Well, maybe it'll give me a chance to catch up on my paperwork, and we'll probably get done early, too. But what a drag. Why don't they just forget about these rinky-dink standdowns."

Sound familiar? Ever felt like that? Well, don't think you're alone if you do. Feedback from the Fleet has indicated that safety standdowns may be losing their effectiveness. As the New Year arrives and the traditional post-Christmas safety standdown approaches, maybe it is time to reevaluate the concept of the safety standdown and determine if it still is performing a worthwhile function.

The concept of the safety standdown – where every evolution in the squadron is halted for 2 days in order to devote time exclusively to an intensive safety review – had its origins about 7 years ago. And the standdown concept

its usefulness?

was very effective. The accident rate for the traditionally dangerous post-Christmas period was substantially reduced, and safety across the board was promoted effectively. Going on the philosophy that if one standdown a year was good, two would be better, a midsummer standdown was also established. Some commands even instituted one-day standdowns every quarter in addition.

Scheduling the standdowns was easy, but executing them effectively was another matter. As any one who has ever been in charge of these standdowns can attest, keeping an entire squadron gainfully occupied for 2 days is a considerable task. This task gets harder for each subsequent standdown, as it becomes more difficult to think up new wrinkles to keep the programs interesting and different. Moreover, the "sanctity" of standdown days has been increasingly violated as missions are scheduled and aircraft flown. As a result, it appears that safety standdowns are losing their effectiveness. Consider excerpts from Anymouse reports received during the past year.

- *"Ours is the only squadron I know that gets 10-15 hours flight time during a safety standdown. June 28 and 29 were supposed to be devoted to safety, but our squadron continued maintenance and flew test hops. Not one lecture was presented on 28 June in the maintenance department. I think the squadron should lay off maintenance and devote their attention to safety, as that is the intent of a standdown. Maintenance doesn't seem to care anything about standdowns."*

- *"On the 15th and 16th of January, there was a stationwide safety standdown here at NAS. The problem as I see it was the overall outlook of everybody involved. The lectures were well planned and informative, but the receptiveness of the personnel was for the most part zilch. The reason for this, I believe, was the command's reluctance to devote time exclusively to safety.*

"No maintenance was supposed to have been done in this 2-day period. However, the squadron did pull maintenance, also causing AIMD night check personnel to work nights and miss the safety standdown completely. And who knows how many squadron personnel missed out because they were involved with flight operations. From what I've seen up here, NATOPS and safety are canceled due to operational commitments."

- *"During the last safety standdown, our squadron maintenance officer flew from NAS East to Homeplate with a prop that would not come out of feather. The P-3 was on a checkflight out of NAS East because of the prop problem, but flew back anyway. Everyone in the maintenance department thought this was appropriate for a safety standdown."*

- *"January is the time for back-in-the-saddle safety standdowns. In fact, a wing order directs us to hold one. The purpose is unquestionable, but the effectiveness depends in part on the support given the squadrons by the wing.*

"We worked hard some weeks in advance to put together a good standdown program. You can believe our efforts received a big blow when we were fragged to fly during both days of the standdown.

"Our ASO discussed the mission with group and wing folks and received the following explanation: 'If

the General hadn't specifically requested your helo type, then we wouldn't have assigned you the mission. You people in the helicopter business have to learn to live with flying during safety standdowns.'

"Picture the effect this had on our program. Lip service makes me feel lousy; how about you?"

These excerpts certainly do not constitute a statistical study, but Anymouse reports usually reflect feelings and problems that exist elsewhere. Furthermore, informal liaison with several squadrons and personal experience confirm these situations. Specifically, the problem with safety standdowns seems to center in the following areas:

- Lack of new ideas or approaches to the standdown. Interest suffers as a result.
- Redundant, uninteresting, or poorly prepared presentations.
- Maintenance not widely included in the standdown. Most of the safety standdowns conducted "topside."
- Not devoting the standdown time exclusively to safety. Flying, administrative duties, operational assignments, even squadron parties taking place during the allotted time.
- Lack of interest and participation by senior squadron members.

Does this mean that safety standdowns serve no purpose any more and should be abolished? No, not necessarily. Safety standdowns still have the potential for good, but the command must decide if it truly wants to support the safety standdown effort if it is to be worthwhile. If the command does want to maximize the effectiveness of its standdown, then it must work on the problems identified above. Here are some suggestions about how that might be done.

The first step might be to alter the format of the standdown. In the typical 2-day standdown, why not devote the first day exclusively to pilot safety and the second day to maintenance safety? Keeping the pilots meaningfully occupied for one day is far easier than two, and boredom and redundancy can be avoided. The second day can then be devoted to maintenance safety, and the officers can be onhand to personally supervise and participate in the maintenance end of the standdown. While the officers hold their standdown, maintenance could be authorized.

The problem of poorly prepared, boring, and uninteresting presentations would be partially cured by not having to spread the lectures over 2 days. Beyond this, command "attention" and "motivation" are the surest ways to ensure that those assigned presentations approach them in a conscientious and professional manner.

The problem of finding new approaches to standdowns

will also be lessened by cutting the requirement for material in half. Nevertheless, keeping freshness in the standdowns is a challenge. For example, most squadron members above the rank of LTJG are centurions in viewing "Ejection Vectors" and "The Man from LOX." So even as good as these flicks are, showing them again will have little impact. Try innovation, and don't be afraid to depart from the traditional. Consider things such as:

- Guest speakers from NAVSAFECEN, the Air Force Safety Center, major command headquarters, or other organizations outside the immediate chain of command.
- Game approaches such as "Safety Jeopardy," games adapted from other television series, "Safety IQ Machine," and other devices from your local training device center.
- Competitive events. All aviators love competition, and with a suitable prize, they may even break out their NATOPS Manuals to study for a competitive NATOPS/safety quiz.
- Try to combine participation/action activities along with lectures and films. Nobody likes to sit for long periods of time, and interest wanes rapidly after lunch. Survival swims, booby-trapped preflights, torso hangs, cockpit egress, aircraft inspections, blindfold cockpit checks and the like may not be completely novel ideas, but they are worthwhile and classify as "action" events.
- Plan ahead. Don't wait for the week before standdowns to plan the program. For example, home movies or slides of pilots in action – doing good and bad things – could be an effective presentation if planned far enough in advance.
- Stage a simulated aircraft accident or SAR evolution. See how good the preaccident plan is or how well prepared aircrews are for survival situations.

This is certainly not intended to be a comprehensive list. The format of standdown is limited only by imagination and innovativeness.

In the meanwhile don't forget about the maintenance troops. Traditionally, the safety standdown has been primarily pilot oriented, and maintenance has concentrated more on maintenance during this period than safety review. This must be changed if the safety standdown is to realize its full potential. Since maintenance error makes up a significant percentage of accident causes, common sense dictates that the same principles that go into making a pilot safety standdown effective must be used in the maintenance portion of the standdown. With the new format as described earlier, maintenance would have one day to perform maintenance. The emphasis that day could be on safety aspects of actual maintenance work. The second day would then be reserved for formal safety presentations with the officers fully involved and participating.

Perhaps the key element of a successful safety standdown is command involvement. If the CO decides to fly during the standdown, how can anyone take the program seriously? If the CO, XO, and department heads don't attend the lectures and programs, how important can the lectures seem to the other pilots? The attitude and enthusiasm that the CO and XO display toward the standdown will greatly influence the entire atmosphere that will surround the safety standdown.

Command involvement goes beyond the squadron level, too. Senior commands that task a squadron to perform missions during the safety standdown are in effect defeating the purpose of the standdown that they probably ordered held in the first place. This problem is particularly acute in helo squadrons where VIP transfers and logistic airlifts are frequently assigned during standdown days. While some missions may be vitally important and arise at the last moment, it is hard to imagine that the bulk of flight requirements cannot be postponed or scheduled for another time if the commands involved *really wanted to.*

Those are the key words for the safety standdown: *Does the command really want it?* If the command is not really interested in devoting the time to create a careful, well planned standdown that takes priority over everything else, then it will be ineffective and useless. If, on the other hand, the squadron approaches the safety standdown as a unique opportunity to concentrate on safety problems, and is willing to spend the time, effort, and occasional inconvenience to produce a good program, then the standdown remains an effective tool that can significantly assist a squadron in lowering its accident rate. ◄

More Bounce to the Ounce. The damage report read as follows: "Both mainmounts blown. Both wheels, brake assemblies, and lines were damaged. The starboard flap and starboard gear door were damaged by debris. Both engines FODed."

An A-3 pilot landed off a normal night GCA at 50,000 pounds gross weight with antiskid engaged. The aircraft touched down hard and bounced to a second landing. The pilot actuated the drag chute, but it didn't deploy. He lowered the hook, but it didn't engage the arresting wire, and he jumped on the binders at 120 knots.

The starboard tire blew 2500 feet down the runway, followed soon after by the port tire. The pilot used nosewheel steering to keep the aircraft on the runway. However, a left drift developed, and the aircraft came to rest 6000 feet down the runway with the nose about 150 degrees to port. A magnesium fire broke out but remained confined to the starboard wheel and subsided before the crash crew arrived.

The endorser identified improper braking technique as the primary cause of the incident. However (and this was important), he addressed contributing factors. The pilot's experience had been in the basic A-3, and he had just been introduced to the CLE-wing (cambered leading edge) series. It's common practice to check the sink rate prior to touchdown, but the amount of back pressure to transition in the basic aircraft is far too much if applied to a CLE-wing aircraft and will cause ballooning.

In the incident, the aircraft used quite a bit of runway between bounces, and when the drag chute didn't open and the hook missed the wire, the pilot had his hands full. Since he had actuated the drag chute, he was committed to land, and thus he focused his attention on stopping.

All squadron pilots were briefed about this incident and warned that even with the antiskid in perfect operating condition (as was the case), tire failure is still possible during a long bounce or with wings rocking. Further, they were reminded that a waveoff is no longer an option after drag chute actuation.

For Want of a Piece of Safety Wire. The crew of a T-29 was stranded at an AFB on a cross-country flight because the aircraft had to undergo an engine change. After the new engine was installed, a test flight was flown and completed satisfactorily.

The pilots filed a flight plan and launched for Homeplate, about 6 hours away. Both engines purred sweetly until the pilot began a final approach.

On final the copilot noted a rapid decrease in oil quantity on the newly installed engine. The plane captain checked the engine and reported a massive oil leak from the lower nacelle flap area.

The pilot feathered the prop and shut down the engine in accordance with NATOPS procedures. (Temperatures and pressures were all normal.) He continued a single-engine approach and made an uneventful landing. The engine was not damaged.

Investigation revealed the front sump drain plug came out in flight. It wasn't safety wired and probably was improperly torqued. The unit QA inspection failed to detect the shoddy work.

Three powerplant mechs and an electrician had made the engine

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change. The electrician and one of the ADR petty officers were qualified CDI inspectors and jointly conducted the inspection before the test flight. The activity decided that in the future, when major components were installed away from Homeplate, a QA representative not involved in the work would be sent to perform the QA inspection before flight.

Missing Cotter Pin. An A-7E was scheduled for a strafe mission. On the first 10-degree run, with the gun low armament switch selected, the pilot noted that the burst cut off prior to the trigger being released. A second strafe run was attempted with negative results. Other runs were made, but they were dry runs.

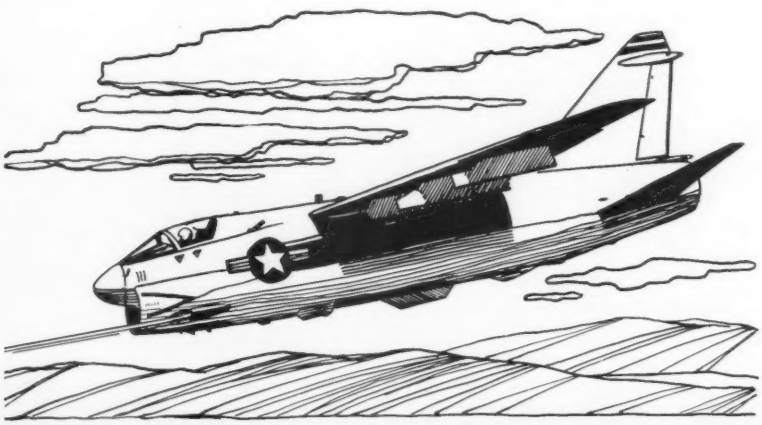
Back at the ranch after the flight was completed, maintenance personnel found two rounds had been fired through the muzzle clamp. Investigation revealed that maintenance personnel had replaced panels prior to a collateral duty inspection. The CDI's confidence in the crew leader's thoroughness (from past experience) prompted him to eliminate a portion of the inspection rather than to have the crew remove the panels again.

A cotter pin had been left out of the mid-barrel clamp, and vibration caused the clamp to slide forward, allowing the barrels to become unlocked from the rotor. One barrel slid forward, carrying the muzzle clamp with it. This permitted two rounds to be fired through the web of the clamp before the loose barrel jammed the gun. Fragments of the muzzle clamp or deflected bullets inflicted a 3-inch gash in the gun blast port.

This incident clearly demonstrates the need for a proper and thorough inspection *every* time.

Who's Flying? A fleet replacement pilot, sitting in the left seat of a P-3, was shooting a TACAN approach. The approach plate, held in place on the yoke by a clip holder, dropped to the deck. The pilot leaned over to pick up the approach plate and the clip holder, and in doing so allowed the aircraft to enter an uncontrolled descent. The PPC took over and broke off the approach. After the replacement pilot finished his housecleaning chores, control of the *Orion* was returned to him and he made a routine landing.

The incident report attributed the experience to the lack of a suitable holder for approach plates. Not really! The reason for the uncontrolled descent was poor headwork by the replacement pilot who did not turn over control of the aircraft to the copilot (PPC) while he went hunting.



It's a good thing it was a training flight in VMC when it happened. If the aircraft had been in the goo and the copilot had been busy changing frequencies, reviewing a checklist, or doing any number of things besides watching the gages, that *Orion* could have augered into the ground and wiped out the whole crew.

Granted, the P-3 community has hollered long and loudly for an acceptable approach plate holder, and their pleas have fallen on deaf ears. However, the problem was not the slippage of the approach plate holder but the slippage of common sense by the replacement pilot.

SOP. CAPT Gayle Adcock and CAPT Ron Smith were in an F-4 on a routine bingo from USS FORRESTAL (as routine as a bingo can be, that is) to NAS Cecil Field. They were given a GCA to Runway 9. On final at 1000 feet and 2½ miles, they experienced a noticeable deceleration and an increased sink rate. CAPT Adcock, the pilot, selected afterburner on both engines, raised his flaps to one-half, and extended the RAT. The port engine had flamed out for no apparent reason. It was relit with all indications normal.

Even though everything looked normal, CAPT Smith, recalling the results of a recent accident in another squadron under similar circumstances, suggested leaving the flaps set at one-half and the RAT out. Together they covered the checklist for a single-engine landing. They turned right for a downwind to land on Runway 36. At the 90 the port engine flamed out again but the sink rate was maintained with full military power. Even though he didn't need it, CAPT Adcock again got a relight, left the throttle setting at idle, and made an uneventful single-engine landing.

Their professional handling of the incident and their heads-up appraisal of contingencies is commended. ◄

By LT Jim Kiffer
NATC Patuxent River

HARRIER *in the groove*

I'M sure most people are aware that the AV-8A *Harrier* is deployed on a carrier for the first time. There has been much interest generated in V/STOL lately, especially since the Soviet aircraft carrier KIEV deployed to the Mediterranean with the YAK-36. This article is not intended to make *Harrier*-qualified LSOs out of its readers. Rather, its purpose is to cover general *Harrier* procedures around the boat (as they stand now) and give readers an idea of what to expect if they are operating with or around *Harriers* in the Fleet.

The *Harrier,* with its vectored thrust, is capable of a wide range of flight characteristics. The approach speed of the *Harrier* in the dirty configuration varies from 190 to zero knots, with the nozzles going from zero (full aft) to 80 degrees (hover stop).

When initially dirtied up, the airplane will be flying approximately 190 knots. The pilot starts to use nozzles to decelerate at the abeam position in the VFR pattern. At this time, he selects 40-degree nozzles and slows to 160 knots. Just past the 90-degree position, the pilot selects 70-degree nozzles, and as the plane rolls in the groove, "hover stop" is selected. To the casual observer, the plane will appear to be flying a normal pass until the 90-degree position, at which time it will start to decelerate noticeably.

For IFR operations, the major difference, besides the deceleration, is that at 6 miles the pilot will descend to 400 feet and will fly this altitude until picking up the ball. While this might seem a little hazardous at first thought, it actually is safer and more comfortable for the *Harrier* pilot because it removes one workload problem from the already high workload of the pilot. Besides working on all the problems normally associated with the "fixed-nozzle" carrier approach, the *Harrier* pilot has to work on the transition from wingborne to jetborne flight.

At 3 miles, the pilot selects 40-degree nozzles and slows to 160 knots. Between 1¼ and ¾ miles (depending on the wind), the pilot selects the hover stop position of the nozzles. What the pilot and the LSO are looking for is

about a 50-knot closure rate by the in-close position.

One problem the *Harrier* pilot encounters is flight deck burble. After he's reached the hover position over the flight deck, the pilot commences his letdown (this hopefully refers to the aircraft's position and not the pilot's mental attitude). As the wind-over-deck gets higher, the burble off the bow, island, and angle deck affects the *Harrier* in the final portion of its letdown (usually from about 15 feet on down). It turns out that no wind conditions hinder the *Harrier* because of the hot gas exhaust reingestion which reduces engine thrust. High winds produce a significant flight deck burble. Because of this, *Harrier* pilots are happy (Marines *do* smile occasionally) with winds normal for conventional fixed-wing operations.

When *Harrier* and fixed-nozzle operations are conducted simultaneously, a *Harrier* LSO is required in Primary Flight in addition to the LSOs on the platform. This additional requirement is due to the high sustained noise level of the *Harrier* over the flight deck. Unlike the "normal" carrier

Continued

pass where the pilot gets high in-close and comes to idle during his play for the deck, the terminal portion of the *Harrier's* approach requires high power settings. Therefore, if the *Harrier* LSO waves from the platform and tries to transmit to the aircraft, all the pilot hears is his own exhaust. Waving from Pri-Fly is one of the *Harrier* LSO's bennies since (depending on the air boss) he will be exposed to less noise and heat than his counterpart on the platform.

Since LSOs wave the fixed-nozzle recovery from the platform, one problem I see developing is where they should go when a *Harrier* rolls into the groove. It would be impracticable and unsafe for other aircraft requiring LSO assistance to have the LSOs clear the flight deck. On the other hand, there is a good possibility that if the LSOs stayed on the platform and the *Harrier* drifted grossly left, they would be blown/singed off the platform. I think the best solution would be to have the LSOs stay on the platform, but ensure that only a minimum number of personnel are exposed (instead of the usual hoard).

Vectored thrust allows the *Harrier* to have a great range of airspeeds for any given pitch attitude. Because of this, the *Harrier's* approach lights work much differently than any other carrier aircraft. The approach lights consist of a 100-watt light covered by a three-segment colored lens. The light is aligned with reference to the aircraft longitudinal fuselage datum, and not linked to an angle-of-attack system at all. The indicator is designed to give an external indication of aircraft pitch attitude only. Therefore, you will see an amber light when the aircraft pitch attitude is 10 degrees noseup, whether the aircraft is in a hover or doing 190 knots.

One of the greatest advantages of the *Harrier* is that it can land anywhere on the flight deck (and its bolter rate should be just about zero). The following landing spots were used during tests aboard the FDR:

Spot I (on the bow) is awkward because the pilot has no visual cues. Once in a hover, the flight deck edge is below the pilot's line of sight, and he must depend on the LSO for information regarding any drifts which might develop (and everybody knows how much you can trust an LSO).

Spot IA (on the foul line abeam the forward part of the island) has good visual cues, but has a bad suck-down burble off the deck edge. Spot II (on the angle deck centerline forward of the wires) is fine in all respects and was used for the majority of landings aboard FDR. Due to LSO reference problems in Spot III (the fantail), the pilot must help himself to ensure he doesn't perform a well executed letdown into the wake of the ship.

The *Harrier* pilot uses the lens in a different manner than the fixed-nozzle types. The primary concern of the *Harrier* pilot during the final approach phase is closure rate vice glide slope. At this time, he uses visual cues for closure rate, monitors the ball for sink rate, and the flight deck for lineup. As he reaches the in-close position, the pilot levels off and crosses the ramp with 30-50 feet clearance. The pilot then uses visual cues and LSO comments to maintain proper height prior to letdown.

Because of exhaust reingestion, the LSO must watch for increased sink rate just before touchdown. This requires a "power" call. The LSO also gives an "idle" call as the wheels touch the deck to avoid aircraft bounce-up.

Integrated fixed/variable-nozzle operations present problems. If a fixed-nozzle aircraft is behind an AV-8A in the day pattern, the pilot should allow an extra break interval to compensate for the 1 minute the *Harrier* uses for deceleration, transition to hover, and letdown. At night, an extra 1-minute interval out of Marshal should be given.

The amount of night operations the *Harrier* will be involved in remains to be seen. It should be noted, however, that the *Harrier's* water injection system uses a lot of water on the transition and hover. Since the airplane's water capacity is limited, to wave off a *Harrier* in-close for a foul deck and send him into the bolter pattern could place the aircraft in a water-critical situation. The logical solution is to clear the deck for the *Harrier* prior to his selection of hover-stop nozzles at 1¼ miles.

By the time this article is printed, many procedures will have been changed. Whatever form the final procedures take, it seems V/STOL aircraft are here to stay. It will be interesting to watch the impact the *Harrier* has on the Fleet and to observe how well and in what manner it adapts to traditional carrier operations (and vice versa). ◄

Lengthy cruises sometimes end in confusion when normally rational pilots and aircrews become irrational and irresponsible in their anxiousness to fly off. You'd almost think that some became diseased (get-home-itis?), explaining how they could act so completely out of character. Flyoffs are fraught with dangers all by themselves. To compound the problems by a careless approach to the flyoff makes things worse. Consider the experience of one helo squadron when the word was passed at the end of the flyoff briefing that the . . .

"Last one off has the duty!"

THE long cruise had ended. The flyoff was scheduled and all aircraft were up and ready. The weather was hot and dusty and presented no problems. The flight to Homeplate would seemingly be routine.

The briefing before departure for all crews was conducted in a lighthearted atmosphere. There was much bantering and joking. Spirits were higher than a totem pole. Finally, the briefing was concluded, and those whose lot it was to fly off proceeded to the flight deck on the double. No one wanted to be stuck with the duty. After all, the pile of dirty clothes which had accumulated needed immediate attention.

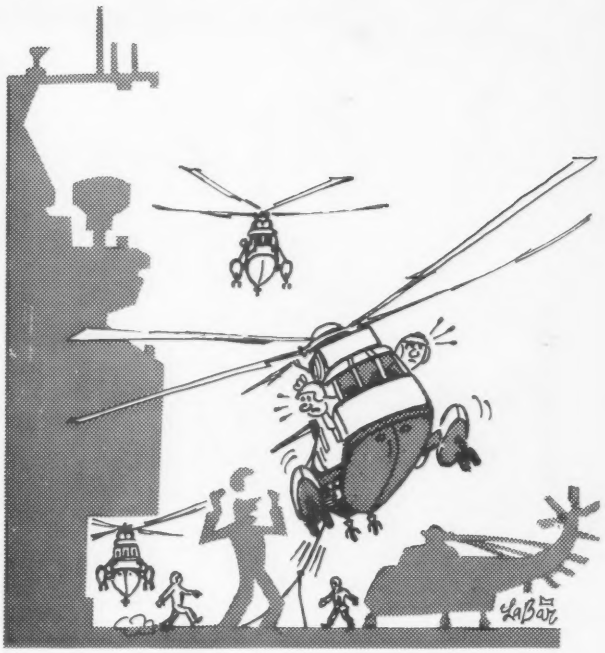
On the flight deck, the first crew to man their aircraft was dismayed to find no starting unit attached to their bird. The HAC tried to pressure the flight deck crew to unhook the unit from the aircraft to which it was attached and move it to theirs. He failed in that ploy. He was told he was No. 2 on the unit after lead, who was No. 1.

Pretty soon, all the flyaway aircraft were manned and engines were started. Those who had to wait for the starting units also were sequentially plugged in and started. Then, in short order, there were changes. One helo went down on turnup. The HAC was a senior type. He and his crew climbed out and bumped the crew in the helicopter on the next spot. The displaced HAC was ordered to bump the junior HAC on a distant spot.

Meanwhile, the air boss began getting questions from the bridge as to the reason for the flight deck confusion. Launch time was rapidly approaching, and even the most casual observer could see that all helos weren't going to make the launch on time.

The air boss asked a question or two in the blind and received no answer of any kind. He then questioned the leader of the flight, and again there was silence. On his third attempt to find out who was on first, lead answered. However, his answers left much to be desired.

It was launch time and the air boss passed the word to go. Lead rogered, and although he didn't have the OK from his LSE, he picked up. Then he went through a heart skip when he realized he still had a tiedown attached. The



helicopter came within a skosh of upset, but lead managed to re-land *upright.* The tiedown was removed. Eventually, the group grope regrouped and everyone became airborne.

After a safe arrival at Homeplate, a hot and heavy discussion ensued as to who had the duty. It was finally settled when lead appointed an interim duty officer until the ship arrived. He decreed that the perennial squadron bachelor (still on the ship) would relieve the interim duty officer and assume the SDO. Little did lead know that the bachelor, who had invited several sweet, young dollies to a homecoming gourmet dinner, would have to make lots of phone calls canceling the event.

In retrospect, the not-so-funny comedy began at the briefing which was all too casual, continued into what probably was less-than-thorough preflights and culminated in a game of musical aircraft on the flight deck. That performance was not what is called *professional.* ◄

Strange happenings

THE SH-2D crew had the helicopter in a 40-foot hover on an overwater training flight and had been airborne approximately 2 hours. An FRP (fleet replacement pilot) was at the controls when the No. 2 engine output dropped to zero percent torque.

The helo began settling and descended to 3 feet above the water. Rotor RPM drooped to 96 percent. The IP (instructor pilot) immediately assumed control as the engine unwound.

There were two crewmen on the hoist, practicing the unconscious survivor technique, when power was lost. The crewmen were level with the belly of the helicopter when the aircraft began to settle. The hoist operator quickly raised them and swung them inside the helicopter.

The salt spray made outside visibility nil. The pilots were IFR in the spray, and the HAC feared further power loss and a water landing. He broadcast his plight, tried to beep up the No. 2 engine, and began a slow, cautious transition to forward flight. Just before breaking the hover, the FRP beeped No. 2 engine to 30 percent torque, but on releasing the beeper switch, torque returned to zero. The actuator for No. 2 was turned off, but emergency throttle wasn't selected.

The IP successfully transitioned to forward flight; then flew to Homeplate and made an uneventful single-engine, run-on landing.

After extensive inspection and ground checks by maintenance sleuths, the cause of the power loss was not discovered. The helicopter was given a postmaintenance checkflight for over an hour, and no abnormalities occurred. Possible causes could have been either a hardover down signal to the No. 2 engine (moisture in the electronic throttle system) or compressor stalls (although there were no audible sounds).

The squadron continued further investigation and restricted flight to the local area for the next 16 hours, but nothing turned up to account for the power loss. Nor could the IP account for his failure to follow NATOPS and use the emergency throttle on No. 2 engine. Had he done so, it probably would have restored operating power. ◄

B Rader

Step by step a crew experiences realistic water survival training from briefing to the horse collar ride to safety.

SURVIVAL NOW!

By ADRC P. H. Slaughter, USN
Training Chief, VC-3

WHAT can a skipper do about survival complacency in his squadron? Well, he might begin with a surprise.

On the morning flight schedule, a crew was slated for a weekly crew's aircraft inspection at 0800. As the crew mustered in front of their DC-130A, the skipper approached with a smile that would chill your heart, and a mysterious paper in his

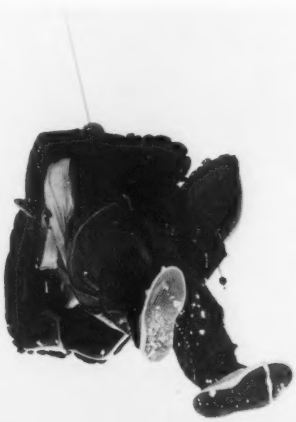
hand. Passing the paper to the startled aircraft commander, the CO asked him to read it aloud to the crew. Recovering his composure, the aircraft commander nearly lost it again as his widening eyes scanned the instructions on the sheet of paper. It was a letter of instruction. The subject was water survival exercise. The crew was directed to consider themselves *in extremis*, having successfully ditched their aircraft. They then had to face the rigors of survival at sea. (The at-sea phase was to be conducted in San Diego Bay, in chilling 54-degree water.)

Complacent? Certainly not this crew, not then. The skipper and his co-conspirators (ASO, the flightcrew training chief, and the parachute riggers) had seen to that. The crew set out busily reviewing those procedures learned at D-WEST (deep water environmental survival training), all the time wishing it were happening to the proverbial "other guy."

Despite their misgivings, all went smoothly. At D-WEST the crew was outfitted with wet suits, LPA-2s, SV-2s, flight suits, gloves, and signaling devices. Meanwhile, at D-WEST tower all was in readiness. For this performance the only brief given the crew was in safe handling of the pyrotechnics. A Mk-20 liferaft was placed in the water. The crew was instructed to swim to it, inflate it, and climb aboard. Each crewman was given the chance to show his skill and knowledge in using the signaling devices. Then they dove overboard for a swim to the base of the D-WEST tower, and each received a free horse collar ride to the top of the tower via the winch-operated cable lift.

CDR H. B. Robbins, Jr., the CO of VC-3, calls it anticomplacency medicine. He views it as a practical tool for providing realistic training and combating the onset of survival complacency among multiengine flightcrews. VC-3 plans a continuing program with future inclusion of other simulated survival situations in which a flightcrew might find themselves. Squadron crewmen might give it other names, but no one disputes its value.

The initial element of surprise is gone now, but squadron flightcrews know it can happen to them any time.



Games pilots

A READYROOM full of naval aviators is an awesome collection of specialists with superb education, training, skill, and physical health. In this stimulating atmosphere, a select group of men (and a few women) endeavor to be the human complement of the enormously complicated and expensive instrument of diplomacy that is today's naval aircraft.

But pilots are people, with fully developed egos (in some cases, overdeveloped), and susceptible to the same psychological influences as their earthbound counterparts. So, with apologies to the late Dr. Eric Berne, here is a partial listing of some games pilots play. See if you can think of some more as you read the ones I have discovered.

Work hard, play hard. This game is played often in squadrons with a strong tradition of gathering afterhours for more than a quiet dinner and a little wine. JOs have the feeling that their performance is as much under evaluation (perhaps more) in the club as it is on the job. Accordingly, they feel obligated to keep pace with the worst lush in the outfit. As a result, "play" is not relaxing, playful, or regenerating, and the players usually have to go back to work to get some rest. The game often results in players peering at each other through throbbing, bloodshot eyes during their predawn brief the next morning. The result is usually a game of "I can hack it."

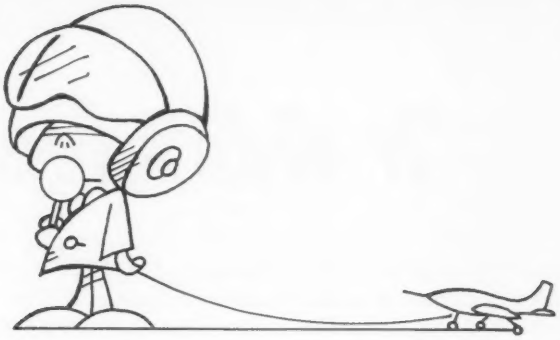
"I can hack it!" Peer pressure and fear of establishing a reputation as a "nonhacker" prods the player into flying an unsound aircraft with an unsound body. The player has the misguided notion that if he doesn't fly his training mission, the national defense posture will radically diminish. Even though his aircraft is baying at the moon and his sleeve is wringing wet from wiping his nose, he pours on the coals and takes to the air. He is often heard to say, "It's a small price to pay for freedom."

"If he can do it, I can do it better!" A squadron pilot performs a skillful (although unauthorized) exhibition of daring and quick reflexes and gets positive reinforcement from the other pilots for being someone who can "really bend the airplane." The player, who is usually a JO with just enough flight time to be inherently dangerous, feels the need to prove his manliness by emulating the stunt pilot.

The impact of this game is stronger if the original pilot is a lieutenant commander or higher. The result is often a *really* bent aircraft or a smoking hole in the ground. This game is very much part of human nature, since every new aviator should feel that he is the hottest thing to buckle a lapbelt since Rickenbacker. If he doesn't feel that way, he should have washed out of flight training long ago.

* NFOs, too.

play*



By LT R. Wilkes
VA-128

"My aircraft is better than your aircraft!" Also known as "If you don't fly A-5s (F-4s, A-6s, etc.), you don't have a hair on your empennage." An unspoken game in which the player transmits by nonverbal communication that he thinks your mother dresses you funny. It is typified by the assumption that if you don't have an afterburner, you have trouble finding a date. Or, if you can't hover, you would never be able to chew gum and use the relief tube at the same time. This game results in a healthy pride in one's own community but stifles the sharing of knowledge between communities and diminishes the solidarity of all naval aviators.

War hero. Players are combat veterans who were "in the big one" and stand a notch closer to heaven. Festooned with IBINTHERE patches, they intimidate the rookies with condescension and aloofness. The game results in poor communication, lack of team spirit, and ineffective training. It is sure to generate resentment from the neophytes.

"What, me read NATOPS?" The player is usually an experienced pilot with 2 or more years in type. He feels he knows all there is to know about the "Belchfire II" and is too preoccupied as assistant coffee mess treasurer to break out the mammoth blue sleeping pill. The result is 2 inches of dust on his NATOPS manual and an accident in the making.

Shoot down. This is a readyroom game for any number of players. The mark is a frightened new ensign giving his first speech to the AOM on pneumatic cross-bleed hydrostatic selector valves. The players usually sit together in the back of the readyroom in an area known as "flak alley." A good time is had by all, except the ensign, who subsequently plans to enter law school and get some respect.

Briefo. This game has two players – the lead and the wingman. The lead ridicules and discounts any suggestions from the wingman during his brief on the conduct of the flight. The wingman then goes out of his way during the flight to embarrass the lead so that he may say, think, or feel, "I told you so." Good wingman Briefo players usually turn out to be equally adept at the game when they become senior enough to lead.

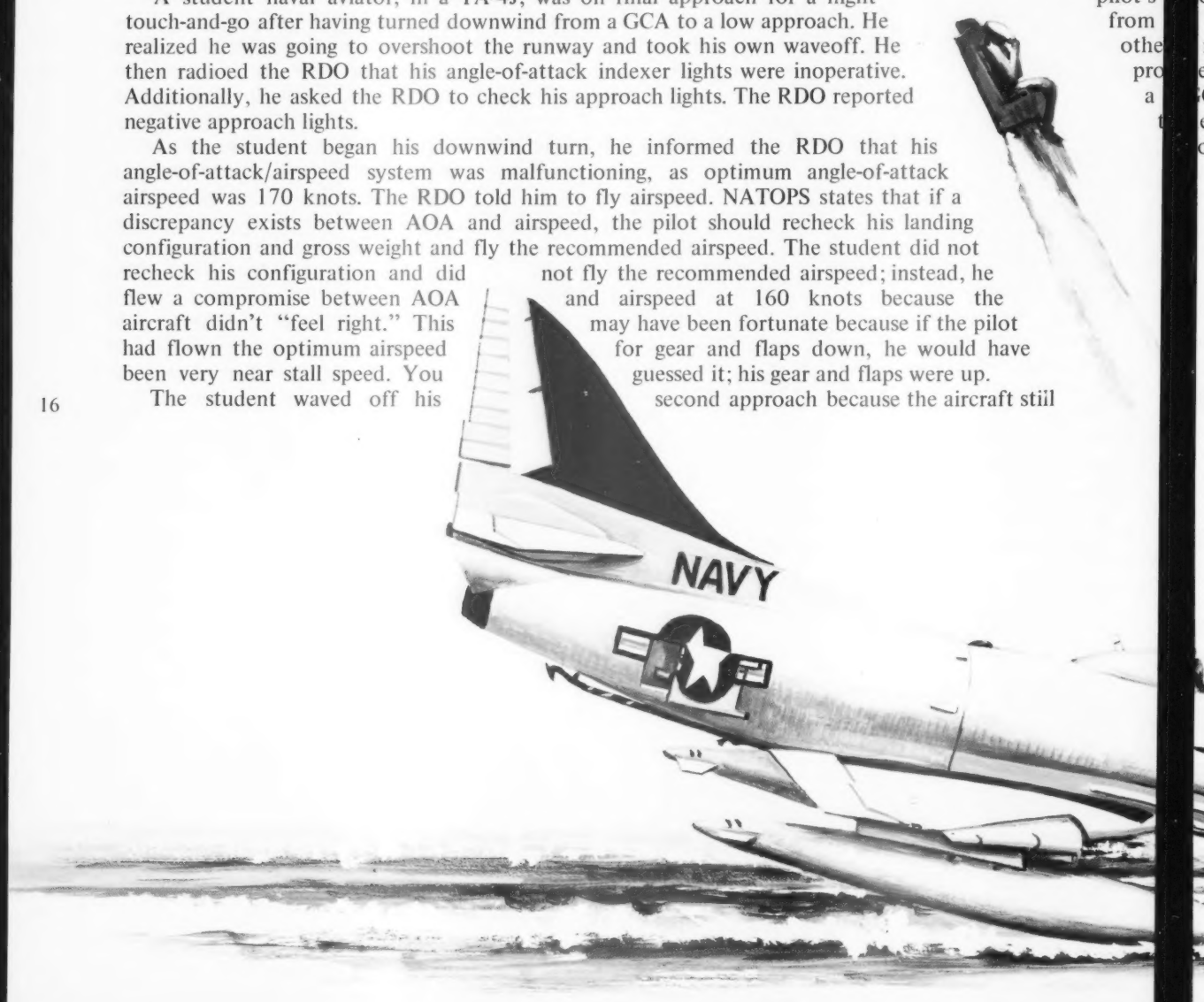
Just as in everyday situations at home or with friends, psychological games are counterproductive. Since we are all in the same Navy and are hopefully all working toward the same goals, there ought to be no place for these types of games. Restricting squadron games to acey-deucey and the like will result in a happier atmosphere for everyone. ◄

"It didn't feel right!"

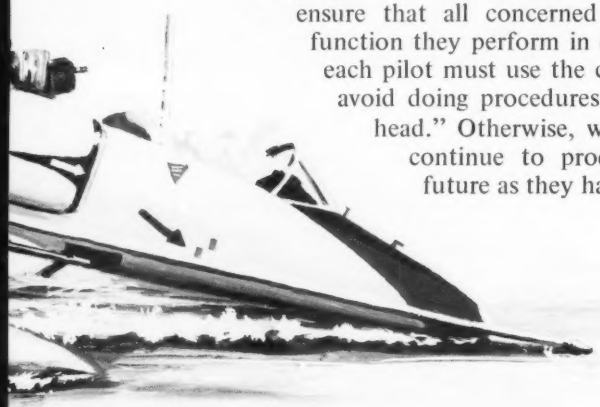
A student naval aviator, in a TA-4J, was on final approach for a night touch-and-go after having turned downwind from a GCA to a low approach. He realized he was going to overshoot the runway and took his own waveoff. He then radioed the RDO that his angle-of-attack indexer lights were inoperative. Additionally, he asked the RDO to check his approach lights. The RDO reported negative approach lights.

As the student began his downwind turn, he informed the RDO that his angle-of-attack/airspeed system was malfunctioning, as optimum angle-of-attack airspeed was 170 knots. The RDO told him to fly airspeed. NATOPS states that if a discrepancy exists between AOA and airspeed, the pilot should recheck his landing configuration and gross weight and fly the recommended airspeed. The student did not recheck his configuration and did not fly the recommended airspeed; instead, he flew a compromise between AOA and airspeed at 160 knots because the aircraft didn't "feel right." This may have been fortunate because if the pilot had flown the optimum airspeed for gear and flaps down, he would have been very near stall speed. You guessed it; his gear and flaps were up.

The student waved off his second approach because the aircraft still



ght," and turned downwind for a third approach. This time the student made a call at the 180 (as he wo previous approaches) and reported gear down and locked. He then continued the approach to at which time the RDO noted sparks and fire, and radioed the student to eject. The ejection was nd the aircraft sustained only limited damage. Subsequent inspection of the cockpit revealed that the flap handles were in the up position. The board concluded that this mishap was precipitated by the onfusion over two separate procedures for two different situations. That is, on a missed approach GCA, it is normal procedure to clean the aircraft up when departing the field for another GCA or maneuver. On the other hand, when turning downwind in the VFR touch-and-go pattern, it is normal edure to leave the gear and flaps down in the pattern. In this case, the student turned downwind from CA low approach (and picked the gear up as he usually did after a GCA missed approach) and entered e VFR pattern where the gear is usually left down. He then failed to check his gear down at the 180 on each of the subsequent approaches. Thereafter, he knew something was wrong because he had no approach indexer or approach lights, and the airspeed for optimum AOA did not meet his expectations. To his credit, he did voice some concern to the RDO, but sadly, the RDO was not much help. From his position inside the RDO cart, the RDO failed to determine the landing gear position. The RDO was not familiar with the TA-4J aircraft systems because he had not flown the aircraft and had not attended the RDO training lecture on that aircraft. This, however, should not have prevented him from deducing that the landing gear was up after receiving three strong indications (inoperative indexer lights, no approach lights, and excess airspeed). Environmental factors may have caused deterioration of the RDO's performance. He arrived for work at 0900, flew one flight, and, on his own initiative, assumed his night RDO duties at 1745, which was 1 hour and 15 minutes earlier than the scheduled reporting time. Prior to this mishap, he had been on station for 4 hours and 52 minutes in freezing temperatures. Neither the RDO or assistant RDO were equipped with foul weather gear. Because of the low temperature, the RDO elected to remain inside the RDO cart, which reduced his lookout ability due to the tinted Plexiglas windows. Investigation also disclosed that the student had not received the required night solo flight brief prior to the flight. Thus, supervisory error contributed to this accident to some degree. This needless accident occurred through lack of compliance with established procedures. Positive steps should be taken to ensure that all concerned are properly briefed and qualified for each function they perform in connection with flight operations. In particular, each pilot must use the checklist at every required point in a flight and avoid doing procedures "by the numbers" rather than flying "by the head." Otherwise, we can expect that breaks in habit patterns will continue to produce unintentional wheels-up landings in the future as they have in the past.

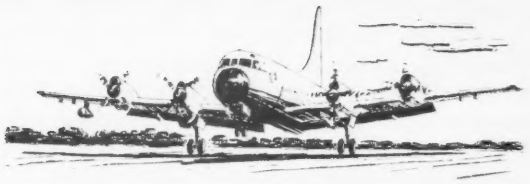


A CO and Safety

By CDR Russell K. Schulz
VP-17

A SQUADRON can accomplish safety goals during the tenure of a commanding officer in a variety of ways. I have seen many commands which have had a strong awareness of a need for a safety program, but no master plan to follow which would cover the entire tenure of a particular commanding officer. I've seen some skippers who took 6 months to get a program started. I've seen some who gave up during their last few months. Emphasis by various commanding officers on safety matters varies as much as the weather in Alaska.

In matters of safety, a CO is the skipper of his own ship. I look back on the master plan VP-17 has completed with



The problems of a commanding officer are diverse and complex. He must consider morale, readiness, safety, training, operations, maintenance, and a host of other matters. To ensure that safety does not fall by the wayside is a challenge that requires careful planning and, most important, command emphasis.

great satisfaction. I feel it will benefit future COs, as well as most aviation personnel, to have an overview of a safety plan that has worked during the last 12 months.

A few basic concepts behind our safety program were as follows:

- There is a best time and place to present a particular topic to a group.
- To be successful, a safety program has to be all-encompassing. Dependents must be included, informed, and kept updated.
- The recipients of safety information must not be fatigued or bored as they receive the information. The timing for large presentations must be carefully considered.
- It is just as important to solve the difficult or vague safety hazard as it is to solve those which are easily recognizable and correctable.
- The CO should strive to mention something about safety at every APM/AOM. Use the ideas/recommendations from the squadron suggestion box.
- A proposed solution to a safety problem must be one which will prevent the hazard from recurring downstream.
- The CO must use the members of the safety council. Look into their suggestions, communicate, and ensure he closes the loop on all safety-related matters.

Using these concepts, the program was established. With Christmas less than 2 weeks away, we offered the squadron wives a comprehensive household safety presentation. It included a fire hazard demonstration, a household security brief, and a presentation by the base safety officer of potential safety hazards found at home and on the job. The final presentation included distribution of an informative pamphlet which was a comprehensive list of associated dangers around the home. These presentations were kept brief; therefore, the audience remained fully alert for all subjects. Feedback indicated many of the wives couldn't wait to leave the briefing and go home to check various safety tips promulgated at the meeting. Five months later, a similar session for the wives was held a few days before we deployed on a lengthy WESTPAC cruise.

A drive-safe movie, entitled *So Long, Pal,* concerning the hazards of drinking and driving was presented during the first standdown on 31 December. It was shown just hours before our annual New Year's Eve holocaust. The remainder of this standdown emphasized post-holiday accident potential to be avoided. Each standdown throughout the year was planned in a similar manner. Only the most worthwhile and timely subjects were presented. Usually an early secure was scheduled so the troops could look forward to their own safety standdown day with a good attitude. Sports events often followed closely on the heels of a standdown.

Continued

Besides standdowns, another extremely important facet of our safety program has been the many avenues of communication open to all squadron members. We have a particularly strong Aviation Safety Council and Enlisted Safety Committee. These groups, by working closely together, were able to take problem areas which had been festering in the past and suggest sensible solutions. For example, some of their accomplishments were:

Problem	Solution
P-3B water containers were once placed on top of the SUS dispensers with resultant flying object hazard in event of ditching or crash landing.	A 2-by-4 stand was constructed so that the containers could be placed within the SUS container and still be functional.
Sonobuoys would lie around loose if more than a standard load was carried aboard during heavy ASW operations.	A box was constructed to hold extra sonobuoys safely.
Pilot familiarization with operations out of NAS Cubi Point during the rainy season (170 inches in 6 months).	The NATOPS officer arranged for pilot briefings with local ATC personnel. Many issues were resolved during these sessions.
Many of our maintenance personnel were working in a high-noise environment but weren't under a program of aural checks.	The ground safety officer promptly initiated a program of periodic testing to detect hearing loss. Earplugs were issued to all personnel. We found that many had severe hearing problems which had previously gone undetected.
Our task group did not have specific written guidance on procedures and action to be taken in the event of an aircraft mishap.	The ASO wrote, distributed, and tested (during a standdown) an excellent Pre-Mishap Plan.
There were a number of important matters needing attention which were low on the priority totem pole – static testing our aircraft grounding points, weight testing our forklifts, checking our fire extinguishers, originating a fire bill for our new facility, weight testing our weapons loaders, and conducting a complete electrical check of all our equipment.	All of these matters and many other problems which arose during the year were solved, identified, tested, corrected, and updated both during and after two safety surveys conducted by squadron personnel.

During the past year, an atmosphere existed where the safety department personnel created new avenues for disseminating information. A monthly newsletter was written and distributed by accident prevention department personnel. The publication condensed versions of the latest URs and incident reports. It contained timely topics on subjects such as hearing conservation, fire hazards on the flight line, safe handling of GSE, etc. Various personnel contributed excellent safety articles to APPROACH that were published in different issues. The VP-17 safety department personnel, in their capacity as hangar king at Barbers Point, organized meetings of the safety departments of all tenant PATRONs twice monthly. During these new and valuable sessions, participating commands

found that many of the safety-related problems encountered were mutual and could be solved far more easily by working together. Our safety team (with the concurrence of other COs) made an 0200 "surprise" inspection of all P-3s on the line. Safety discrepancies were brought to the attention of each CO (via personal memo) for his corrective action. This security check paid many dividends.

We in VP-17 achieved success in safety because:

- We used a soft-sell technique. The safety standdowns were well organized, short, and sweet. Training movies had to be germane and new. The CO led the pack in talking/thinking/acting safety.
- We encouraged original thought and recognized those who pointed out safety shortcomings. Those who made significant contributions were commended in their fitness reports or enlisted evaluations.
- We didn't stop just because a problem was tough.
- We periodically reviewed our files (URs, APD newsletters, Safety Council minutes, APPROACH and MECH magazines) to make sure an old problem wasn't about to come back and haunt us. Through various sessions, letters, and familygrams, the wives were kept informed on the squadron, our progress, and our safety plans.
- Finally, we had the support of all hands; **they** made the master safety plan work. How did this come about? *By communication!* Commanding officers must communicate with the entire squadron on any matter involving safety. Get on the hangar deck and talk to the troops and listen to their suggestions. Never be too busy to speak to or discuss safety, on or off the job. It worked for us. What are *your* future plans? ◄

"NO SWEAT!"

IMAGINE climbing into the cockpit in the uniform of the day, no heat or cold to make flying uncomfortable, no precipitation to worry about, and knowing there's no chance you'll be involved in a midair. Man, that's living! It's also a routine experience for more and more pilots.

We're talking about simulators, their use, value, and our attitude toward them. For pilots, OPNAVINST 3710.7H lays down the rules for flight time requirements and what may be substituted in simulator hours. It even tells you how to log these hours, but what it cannot do is define the training value you will receive. That is up to you.

Let's advance the years to 1984. By this time, DNA SSN 123-45-6789 will enter the simulator room to fly his flight scheduled for tomorrow in the complete flight gear of the day – poopy suit as necessary. The functional wing checkpilot will be standing by to check every detail of the proposed flight – weather briefing, flight planning mission profile, checkpoint identification, check-in/out procedures, and any other phases of the flight which may be prechecked. The pilot and crew enter the simulator to begin the flight from chock to chock.

Computer-generated imagery will provide visual cues where necessary. There will be 6 degrees of freedom and 3-axes motion. The checkpilot will introduce various emergency/unanticipated events periodically as the flight progresses. I can hear it now – "But there's no pucker factor to add realism." Oh, no? Just foul up on any phase of it and you will be grounded until it's letter-perfect. Barring the complete cooperation of the crew to do it correctly, your flight pay will be in doubt. Now there's your pucker factor!

Maybe the simulator will not buy the farm, but a program of this sort cannot be labeled "no sweat." Luckily, we haven't gone this far, but with decreasing funds for new aircraft and flight time, we are going to have to get 60 minutes of mission-orientated training for each hour of flight time.

Granted, it may be difficult to learn ACM, DCM, and CQ from a simulator, but we are getting closer to being able to do just that. We have built an ACM trainer. We have a night CV landing simulator now. As technology advances, we no doubt will be able to accomplish other flight phases in simulators.

All these costly devices are to no avail unless we, the operators, approach each simulator period as a real flight. Learn what is possible, forget the negative carryover, and put into practice those sound principles and procedures learned in the simulators. Newly designated aviators have been exposed to the simulator/aircraft methods of flight training. This was necessary to reduce time and costs of aviator training, and it is more important to maintain the readiness of Fleet crews. It's just that it's harder to teach old dogs new tricks, or more realistically, to change old, ingrained attitudes against the value of simulation in general. We have proved the worth of simulation in our space program. Let's all get behind our simulator program in current aircraft and make it pay the dividends in knowledge and safety of which it is able. ◄

A COORDINATED EFFORT

By LT P. L. Patterson
VAW-112 ASO

DURING a recent deployment aboard USS RANGER, an E-2 made a no-flap, shipboard arrested landing. There were no injuries nor aircraft damage, and a routine incident report was submitted. Sounds uninteresting, doesn't it? Well, as a matter of fact, it came unnervingly close to becoming a major mishap! Were it not for the calm and expeditious coordination between aircraft commander and numerous individuals aboard ship, the results could have been drastically different.

The E-2B launched on a routine mission and proceeded to station. It was not until attempting to lower the flaps to 10 degrees that the pilot had any indication of a flap malfunction. The flaps were stuck at full up. Stuck flaps are not uncommon in the E-2, and there are two alternate emergency methods of actuating them. However, when attempts to free the flaps using both alternate means proved fruitless, the pilot began to seriously consider the possibility of a no-flap recovery aboard since there were no bingo fields within range.

The pilot radioed back to the ship to talk to squadron representatives. All emergency measures were again thoroughly discussed and reviewed. Two more attempts to free the flaps were made using both alternate methods. Still no luck.

The pilot was instructed to make a hookup approach to see if the correct combination of factors could be attained for arrestment. If unable, the barricade would be rigged.

An E-2 no-flap carrier arrestment is marginal not only because of the cocked-up attitude and increased speed, but especially because of the critical hook point engagement speed which requires a very high wind over the deck. Unfortunately, natural wind at the time of this incident was only 9 knots. To complicate matters, the ship was operating on only three screws at the time and was unable to produce more than 20 knots.

The pertinent aircraft recovery bulletin provides a maximum E-2B hook point engagement speed at maximum gross landing weight of 86 knots. 135 KIAS is the recommended airspeed for an E-2, no-flap approach at maximum landing weight. By increasing AOA to 24 units, you can reduce this airspeed to approximately 125 KIAS. Stall warning is initiated at 26 units. This would still require a wind over the deck of almost 40 knots. The captain did not expect to get more than 28 or 29 knots.

A coordinated effort was taking shape at this time between the captain, CAG, squadron representatives, air operations, Primary, the LSO, and the aircraft commander. Alternatives were discussed. There were three: ditching, bailout, or the barricade. Ditching and bailout were eliminated and the barricade was discussed. In accordance with the previously mentioned aircraft recovery bulletin, maximum E-2 engaging speed for the barricade is even lower – 70 knots. Therefore, if unable to come up with the required combination of wind over the deck and final approach speed, it was decided to recover the aircraft into the barricade, hook down.

The basic weight of the aircraft was 38,881 pounds. By dumping fuel and further burning down to low fuel, the pilot estimated his weight on the ball would be 40,600 pounds. Additionally, by setting the arresting gear engines for an aircraft weight of 41,000 pounds, the hook point engagement speed would be increased to 89 knots. With 29 knots of wind over the deck, this would limit final approach speed to 118 KIAS. Still a little slow.

The pilot was instructed to make a hookup approach to see if the correct combination of factors could be attained for arrestment. If unable, the barricade would be rigged.

The recovery of all other aircraft was completed when the E-2 reported approaching his minimum landing weight. The pilot set up for a long straight-in, and the captain called down to the engineer for maximum speed. The engineer responded by shutting off all steam to the catapults to provide maximum power for the three operating screws. At the same time, the LSO set the glide slope to 4 degrees vice the usual 3.5 degrees and backed off the roll angle to move the hook touchdown point aft. After establishing the aircraft in its approach configuration, the pilot reported that he believed he could safely maintain a final approach speed as low as 120 KIAS. The approach was commenced.

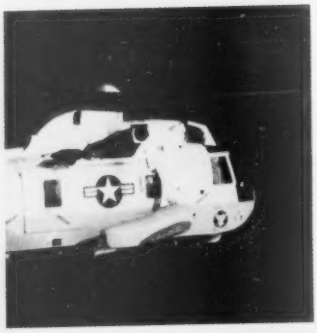
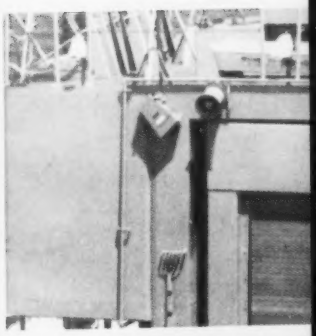
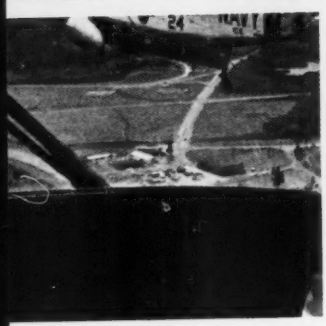
Straining to provide maximum speed, the ship managed to produce 21 knots. This, coupled with a slight increase in natural wind, provided 35 knots of wind over the deck as the pilot called the ball. This raised the maximum allowable final approach speed to 122 KIAS. SPN-44 indicated the aircraft was closing at 88 knots – 1 knot below the maximum allowable. Because all factors were looking good at this time, the LSO called for hook down. The pilot, LCDR Jim Strickland, VAW-112, flew a perfect pass and picked up the target wire.

To many uninformed individuals throughout the ship who happened to observe the recovery on the PLAT, it looked like an uneventful E-2 arrestment. To all directly involved in the evolution, from the captain to the aircraft commander, it was the successful culmination of a highly complex and well coordinated effort by many individuals.

To all those involved in this incident, well done. Fortunately, recent developments in E-2 hardware and revised wind-over-deck (WOD) requirements have made future mishaps similar to this very unlikely. First of all, E-2B Airframes Change 263 incorporated a hydraulic flaps/brake line restrictor. This should significantly reduce the E-2 flap failure rate by decreasing the hydraulic pressure spikes that have caused failures in the past.

The second reason future E-2 no-flap landings will be less critical is the revised approach and arresting gear criteria. The Naval Air Test Center was tasked in September 1976 to determine the suitability of 22-23 unit AOA no-flap and 10-degree flap approaches. Field evaluations revealed that the current minimum shipboard recovery WOD requirements could be reduced by 6-8 knots in the 10-degree flap configuration and 10-14 knots in the no-flap configuration, although this made a more difficult approach for the pilot. Specifically, aircraft response was more than expected for normal glideslope/lineup corrections. Also, the very low power setting required for no-flap approaches tended to produce large variations in rate of descent with very small power adjustments. Complete conclusions and recommendations will be published in a report of test results. – Ed.

helicopter

IFR minimums

By LT T. E. Corkern
HS-1

ROTARY wing flight, for so long the stepchild of aviation, has progressed a long way. Technology is providing us with the know-how to overcome current limitations in speed and airframe efficiency. IFR restrictions on helicopters, however, have simply not kept pace with the state of the art, particularly in the area of approach/landing minimums.

We in the helicopter community must bear a major portion of this blame. We think nothing of spending the major portion of a deployment at 150 feet, frequently on the gages, shooting automatic approaches to a hover, when you can't see outside the cockpit. However, we are perfectly content to come back ashore and accept obsolete approach/landing minima that are based on fixed-wing stall speeds and maneuvering criteria. We fall back into the old routine of requesting Special VFR clearances out of control zones, to bob and dodge in marginal VFR conditions along the route of flight, counting on another Special VFR clearance into our destination.

The late 1940s and early 1950s saw development of automatic stabilization equipment and full IFR capabilities in the helicopter. In addition, the Korean and Vietnam Wars helped establish the helicopter as a viable weapons system and short range transport. With full IFR certification, however, the helicopter was simply absorbed into the existing fixed-wing, IFR environment. No consideration was given to its unique capabilities when assigning takeoff and landing minimums.

Both FAR (Federal Aviation Regulations), Part 91 and OPNAVINST 3710.7H recognize the unique capabilities of the helicopter to operate safely under VFR in lower meteorological conditions than fixed-wing aircraft. Indeed, below 1200 feet AGL and outside controlled airspace, fixed-wing aircraft must have at least 1 mile visibility and remain clear of clouds to operate VFR. Helicopters, however, have no specific visibility or cloud clearance requirement to operate VFR, provided they operate "at a speed which allows the pilot to see and avoid other air traffic and maintain obstacle clearance." This is well within the capabilities of the airframe and the pilot. It, more importantly, allows for maximum utilization of available assets, without undue degradation of safety. No such consideration, however, is given to helicopter IFR minimums. To restrict an aircraft capable of landing with zero groundspeed to the approach minimum of one requiring up to 90 knots is an unnecessary administrative restriction.

Thus, a problem/opportunity exists in the helicopter community with the interface of VFR minimums and existing IFR minimums. In the former, we may properly utilize the aircraft within the acceptable regimes of safe flight and sound judgment, and in the latter the pilot is unduly restricted from fully utilizing the aircraft to obtain maximum efficiency. This can often result in mission degradation.

The choice of flight rules to be followed may be dictated by weather and mission requirements; however, pilots are required to utilize sound judgment to provide a greater margin of safety when operational requirements permit. Weather minimums for IFR/VFR flight are just that – minimums. OPNAVINST 3710.7H requires all flights in naval aircraft to be conducted in accordance with IFR to maximum extent practicable. Indeed, commanding officers are directed to "ensure compliance with the intent and spirit" of this requirement. The problem arises in that a helicopter can legally operate into and out of controlled airspace, utilizing special VFR clearances, with meteorological conditions that could preclude a landing had the pilot filed and flown an IFR flight terminating in a nonprecision approach. This contradiction in IFR/VFR minimums has resulted in more than one aircraft commander/flight leader not following the "spirit and intent" of maximum utilization of IFR filing for point-to-point flights.

The opportunity exists in the helicopter pilot's ability to slow his airspeed considerably during the final approach segment and remain fully maneuverable, should condition warrant.

Both the FAA and CNO recognize the helicopter's ability to operate safely in reduced visibility by allowing helicopters lower VFR minimums. Let's take the next logical step and update helicopter IFR approach/landing criteria to allow more efficient utilization of the available assets and get on with the business at hand.

CASE I. "As safety observer for low-level navigation flight, chase pilot established position well below lead aircraft and impacted ground."
CASE II. "Returning from weekend cross-country flight, crew performed unauthorized aerobatic maneuvers until impacting the ground in a nearly vertical attitude."
CASE III. "During join-up phase of rendezvous, pilot dissipated excess airspeed by performing canopy roll over lead aircraft, resulting in midair collision."

REACHING THE UNREACHABLE STAR

By LCDR Carl McCullough
Naval Air Systems Command

UNDERLYING these summaries of recent accidents are a number of factors too closely related to ignore. Most significant of these is the fact that all three pilots involved had been previously observed demonstrating qualities of questionable airmanship and/or judgment. That these three pilots were allowed to fly is not being questioned here. The key issue is derived from another important fact – that the information available to commanding officers regarding the tendencies of unusually brash pilots is often incomplete.

Over the years, naval aviation has made significant progress in reducing the major accident rate. This reduction is due in part to increasing awareness among pilots and flight officers that tomfoolery in naval aircraft is no longer tolerable. Behavior that once resulted in a slap on the wrist now frequently results in a pilot disposition board. Despite this effort, it appears from these and other recent accidents that we are still being plagued by the "unreachable stars."

The star in the first case was an aviator with 875 total flight hours. He was described by the AMB as "a very action oriented individual whose appearance in the eyes of others seemed very important to him." Not unlike a lot of us – right? Except that a projection of this drive was apparently to fly dangerously low. He had expressed his enjoyment of low flying to his roommate on numerous occasions and had been recently criticized for his dangerous tendencies. During his final flight briefing, he prophetically proclaimed, "You'll probably see me below you."

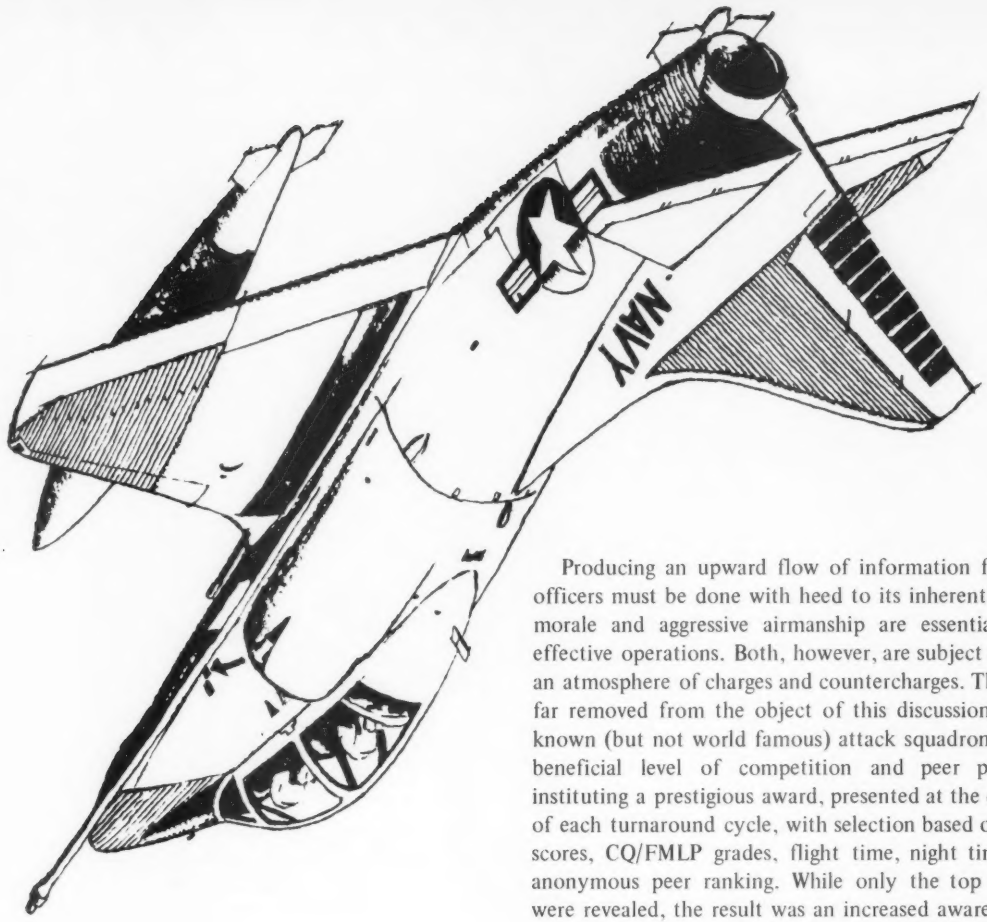
The second star had 835 hours and was regarded as "a highly talented individual with a great deal of potential who occasionally showed a marked degree of immaturity, poor judgment, and poor impulse control." The flight surgeon further described him as having had "a narcissistic personality with grandiose ideas about his glamorous self-image." His flight leaders and NFOs had found him difficult to control. Tragically, that lack of control cost one of them his life.

The star of Case III had 1100 flight hours and was a qualified section leader. He had previously done rolling maneuvers over other aircraft with "close enough lateral separation to leave very little margin for error," a fact unknown to his CO. Less than 3 weeks prior to his accident, he had been reported (by a source outside his command) to have violated NATOPS by performing three consecutive aileron rolls over a ship while dumping wing fuel.

Comments by the AMB and subsequent endorsers in these accidents reflect a serious bottleneck in the flow of information to the command level. In Case I, the CO concluded that "the tragic loss of a pilot and aircraft might well have been prevented if communications concerning the mission competency of the pilot was either known or brought immediately to command attention." Concerning the pilot in Case II, an endorser commented that "after the accident actually took place, his marginal substandard performance was totally substantiated as peers and others came forth with specific instances of undisciplined airmanship." Finally, in Case III, it was concluded by the AMB that those who had observed previous showboating by the pilot had "failed to report these actions to any supervisory personnel."

The questions arising from such a series of accidents demand consideration. Why is it not until after an accident that such critical information is made available to commanding officers? Has there been enough emphasis on what constitutes unacceptable airmanship? How do we reach these unreachable stars? How do we curtail such activity without stifling the highly desirable "tiger spirit" in all our aircrews? Can it be done without sacrificing morale?

The fact that accidents of this nature continue to occur despite tighter enforcement indicates the need for a shift in some commands' emphasis. Rather than channeling the entire effort into reaching the unreachable, it is time to convince the "reachable" (a vast majority) of their essential



responsibility to keep the command level informed. Aviators, inescapably, are their brothers' keepers. In no other vocation can be found the need for such critical reliance on one another. Nor does any environment offer so convenient a communications forum as the squadron readyroom. In this setting we must pursue a dedicated program of reaching the peers of the "unreachable."

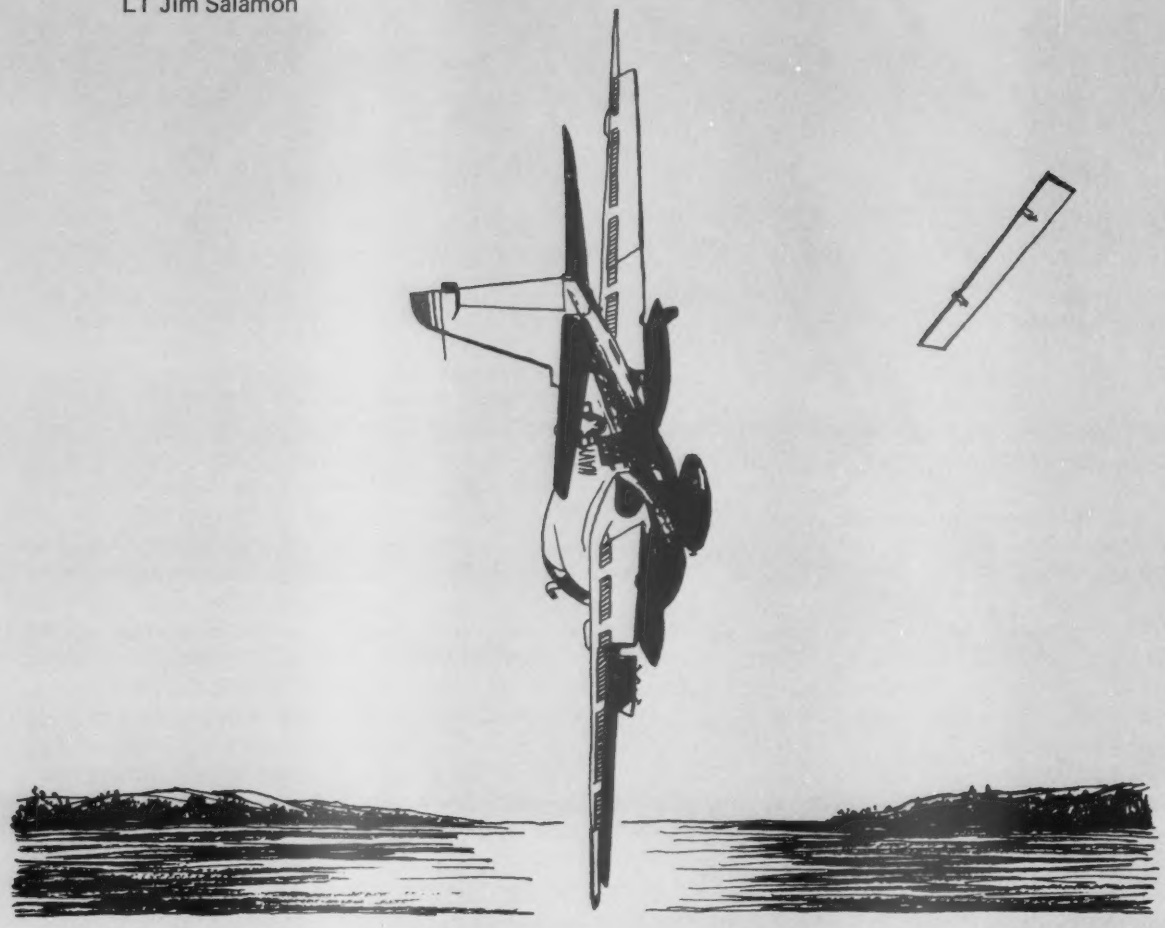
The foundation of this program has already been laid. Everyone knows the rights and wrongs of airmanship. No increased effort in this area is viewed as necessary or desirable. Continued training, however, should contain the clear assertion that a maneuver unfit for a flight with the CO is unsuitable for a flight with anyone else – or alone, for that matter. In determining the targets of such training, it should be noted that all three pilots discussed previously were curiously close to the famed 1000-hour mark. Furthermore, all experienced their mishaps while flying with relative contemporaries.

Producing an upward flow of information from junior officers must be done with heed to its inherent risks. High morale and aggressive airmanship are essential for safe, effective operations. Both, however, are subject to decay in an atmosphere of charges and countercharges. That result is far removed from the object of this discussion. One well known (but not world famous) attack squadron achieved a beneficial level of competition and peer pressure by instituting a prestigious award, presented at the completion of each turnaround cycle, with selection based on bombing scores, CQ/FMLP grades, flight time, night time, and an anonymous peer ranking. While only the top five scores were revealed, the result was an increased awareness of the need to perform *professionally*, despite the rank of one's leader or wingman. Multipiloted aircraft squadrons have achieved success through several forms of aircraft commander boards, most notably those which encourage all those who have flown with the pilot in question to comment on his abilities and tendencies.

The key squadron personnel in a program of this sort are, of course, the safety and operations officers. They are indispensable in keeping communication lines open. Not only must they ensure that command policies are implemented and understood by junior officers, but they are also responsible for informing the CO of potential problem areas. Commanding officers will continue to confront the unreachable star – an accident waiting to happen. Only when all the facts are known about these people can the proper decisions be made regarding aircrew scheduling and utilization. In the words of one endorser, "Peacetime is the time to be highly selective, and there are many young professionals just waiting to take the vacant Fleet seats."

Bravo Zulu

LT Phil Kirby
and
LT Jim Salamon



THE crew of a KA-6D was executing an instrument departure from NAS Oceana in solid IMC at 1500 feet, with flaps/slats extended, at 190 KIAS. The aircraft suddenly pitched up 45 degrees and rolled to a 90-degree left wing down attitude. Not a very healthy attitude to find yourself in – and one which is guaranteed to start the adrenalin flowing.

The pilot immediately applied full power, full right rudder, and flaperon and was able to recover from the unusual attitude. A visual inspection of both wings showed no discrepancy, and they determined that the KA-6D was controllable for a landing. An emergency was declared with a request for GCA and an arrested landing. After dumping fuel, LT Kirby flew a 150-knot approach to an uneventful arrestment.

During the postflight inspection, they discovered that their emergency had been caused by the departure of the outboard section of the port flap.

Their timely and correct response to this emergency under very demanding conditions qualifies LT Phil Kirby and LT Jim Salamon of VA-85 for recognition by APPROACH's Bravo Zulu award. Well done! ◄

Re "Clothing Under *Nomex*"

Clothing Under *Nomex*

Analysts at the Safety Center spend most of their time reading reports – reports on this, reports on that. Possibly the most distressing ones that come their way are those submitted by medical officers after an aviation accident. Regrettably, some of those reports are accompanied by a pathologist's report.

However, one point that frequently comes out in the analysis is the value of *Nomex* flight gear. Repeatedly, major burn injuries have been avoided by its use. It has been noted that the addition of at least one other garment, even a cotton garment worn under a *Nomex* flight suit, has dramatically reduced the severity of the burn injuries.

So, why take chances? Next time you don your *Nomex* flight suit, take a closer look. Ask yourself, "Are the legs long enough? Are the sleeves long enough to meet up with the *Nomex* flight gloves? How much bare skin is showing or would show when I sit down? Are there any tears in the suit?" Think about it. What a small premium to pay for such a good dividend!

WEEKLY SUMMARY No. 11-76
(7-13 March 1976)

NATC Patuxent River – At Pax River we conduct quarterly safety standdowns as part of an ongoing safety program. During each of these standdowns, guest lecturers with aviation backgrounds are invited to give presentations on specialized areas concerning aviation safety/accident prevention.

During our last survey, Capt Chuck Nowlin, U.S. Army, attached to USAAAVS, Fort Rucker, gave a briefing on crash survival. His information conflicts with information published in the WEEKLY SUMMARY No. 11-76 titled "Clothing Under *Nomex*" (see box). In the second paragraph, the words leave the reader with the feeling that anything worn under *Nomex* is good and that cotton is the worst. According to Capt Nowlin, the Army's experience has been that clean, white cotton pullovers provide the optimum enhancement to the protective qualities of *Nomex* for the following reasons:

- Cotton garments trap considerable air which acts as an insulator.
- Cotton will burn – but it won't melt into your skin like many of the nylon/banlon type shirts. Once melted, it seriously hampers cleaning and healing.
- If it is clean, it will not be a source of infection should serious burns occur.

As a result of this briefing, I purchased several 100 percent cotton, long sleeve pullovers (turtleneck) which I wear at all times. During cool/cold weather, I wear 100 percent cotton long johns for added protection.

Another interesting point brought out by Capt Nowlin was that many serious burns are sustained by aviators wearing *Nomex* (correct fit, sleeves down) in the open area on the neck and throat between the bottom of the helmet and the top of the flight suit collar. He also commented that *Nomex* suits customized by removing pockets and tailoring them skintight for that "macho" look also reduces *Nomex* protective capabilities, since the air trapped between layers and in the folds of the suit acts as an insulator. Further, he added that *Nomex* suits should be drycleaned periodically to remove body oils not removed by washing.

I'd appreciate any comments you have on Capt Nowlin's information in regards to the wearing of garments under *Nomex*. Also, it seems that a turtleneck *Nomex* pullover would be a welcome addition to the aviator's wardrobe. It would provide additional protection to the neck and throat areas.

LCDR R. D. Lichtermann
Strike Aircraft Test Directorate

• It was not our intent to infer that a cotton garment was the worst possible item of clothing to wear beneath *Nomex*. The statement was made to bring to aviators' attention the need for an extra layer of clothing to enhance the protection given by the top layer of *Nomex*. (How many aviators have you seen manning aircraft with sleeves rolled up and bare skin exposed? These are the people at whom the article was aimed.)

Your points are valid and pertinent to this issue, and the Army's policy is in complete accord with Navy policy. Your individual action in providing yourself with the garments you describe is commendable. The *Nomex* underwear of the design you describe is being procured for naval aviators, but regrettably, the existing supply of "waffle weave" has to be expended before full procurement can be initiated by the Aviation Supply Office. ◄

Letters

To the Left

CGAS Cape Cod – I read your article "Like a Pro" in the SEP '76 issue of APPROACH and have encountered a minor point of confusion. Most helicopter pilots I know believe that an engine failure is associated with a yaw to the left, not the right. Can you confirm this?

LT Thomas J. Burnaw

• You're right! Engine failure is usually associated with a left yaw, and tail rotor failure is associated with a right yaw. The bum dope in the September issue was written by an old helo pilot who didn't know his yaws, or from which side his kicks came from.

Re "Blacked Out at 390"

Langley AFB, VA – I must take exception to the views expressed in "Blacked Out at 390" in the OCT '76 issue of APPROACH. While ENS Williams did take charge of the situation after his IP became hypoxic, both he and his IP were responsible for their own dilemma.

Both student and instructor elected to depressurize their cabin at FL390 to cure a wing transfer problem. In this instance, the cure was worse than the malady. Had a descent to FL250 or below been made prior to dumping cabin pressure, the incident may never have occurred. Additionally, it would have been more consistent with OPNAVINST 3710.7H which directs a descent to FL250 or below when cabin pressurization is lost.

All too often, Navy and Air Force aviators receive no recognition when they successfully cope with an emergency that was not a result of their own fault, error, or neglect. Let's not compound this inequity by praising those who create their own problems through poor judgment and by violating directives.

Capt Marty Steere, USAF
Editor, *TAC Attack*

• You bring up a good point, but close study reveals the pilots violated no directives. By securing electrical power, the pilots were executing standard and approved NATOPS procedures for a fuel transfer failure. The NATOPS manual also allows flight at altitude with a depressurized cockpit. The only environmental caution associated with this procedure is to ensure that the oxygen system is operating properly. To the best of both pilots' knowledge, this was the case.

Close study of the T-2 NATOPS reveals that it is not necessarily in contradiction to the paragraph you reference in OPNAVINST 3710.7H (para 704 b(2). The paragraph in the General NATOPS pertains to multipiloted aircraft that maintain cabin altitudes below 10,000 feet at all times and do not require the routine use of oxygen. The T-2 is categorized as a tactical/training aircraft and thus does not fall into this category.

This is admittedly a matter of interpretation, however, and we agree with you that depressurizing a cockpit at 39,000 feet is not good headwork, regardless of what any book says. At this altitude, the oxygen mask and system must operate perfectly to supply adequate oxygen. Any leak, seal degradation, or other system deficiency can result in hypoxia or lead to other serious problems as was vividly demonstrated in the article.

This is actually an academic discussion, however, since a change to the T-2 NATOPS is being recommended which will prevent incidents such as this in the future. A recommended change to the fuel transfer failure procedure has been submitted which calls for the aircraft to descend below 20,000 feet before electrical power is secured. The actual reason for this change has to do with a fuel boost pump loss when electrical power is secured, but the net effect will be to eliminate environmental problems such as occurred in this incident.

Dim the Lights

NAS Norfolk, VA – The interior lights of HSL-30's new hangar are so bright at night that they almost blind pilots taxiing into the HC-6 line. HSL pilots benefit from the light reflected off their white concrete ramp. However, HC-6 and Marine pilots must taxi on black asphalt, off to one side; consequently, the glare is fierce. It's only a matter of time before someone, groping his way in, taxies into an obstruction. This can be eliminated if the hangar lights are dimmed or if the hangar doors are closed at night.

R. A. Basore

More Against the CWU-33 Wet Suit

MCAS Cherry Point, NC – I empathize with LCDR Smith and LT Brich in their concern about cold weather flying gear ("The *Ventile* Antiexposure Suit," OCT '76 APPROACH). During 1972-73, I was with VMA-513 *(Harriers* out of Beaufort, SC), and we were doing a lot of sea control ship trials in the far north. Our cockpits are small (like the A-4), and we felt there had to be

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

something better for protection, comfort, mission capability (air-to-ground and air-to-air), and cost rather than the CWU-33/P. We did a study using eight pilots with open-purchased, custom-fitted divers' one-piece wet suits. Overall opinion was favorable. One objected vigorously, but his fit was bad due to improper measurement for the suit. We lived in the suits 12 hours a day for 21 days aboard GUAM (LPH-9) while flying SCS alert missions in the *Harrier.* We wore our standard flight suits, G-suits, and torso harness over these wet suits. Comfort and mobility were enhanced appreciably over the CWU-33. We recommended use of two-piece rather than one-piece suits to allow more flexibility for crew protection during the seasonal transition period (cool mornings and evenings with marginal 60-degree water temperatures).

Our report went up the chain of command all the way to the Pentagon. The fall of 1973 I received a call from a Medical Service Corps captain who informed me they were looking favorably on our findings. However, "the Service had spent millions to stock CWU-33/Ps, so nothing would be done until stocks were depleted."

Well, I understood the captain's position, so I let it drop there. The best we could do was to work harder to make the CWU-33s fit our pilots better. I suppose if we had deluged NAVAIR with URs on the suit, things might have happened sooner, but we had more critical "alligators" to worry about in our swamp.

VMA-231 *(Harriers)* is aboard the FDR now, and they have authorization to wear the *Ventile* suits (CWU-21/P). Let's hope they give us a good report on it if it really is as good as VF-43 says. A little more fuel to the fire will only help all of us aviators sooner.

Well done, Gary and Bob!

Capt Toby Griggs
VMA-513 Det A

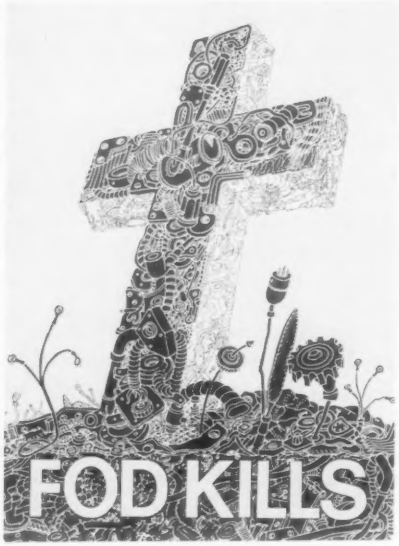
Another Way

MARTD, NAS Norfolk – Kudos to LT Knudson and his safe, single-engine landing which you reported in the WEEKLY SUMMARY No. 35-76 ("An Incident Vice an Accident," 22-28 AUG '76). However . . .

If he had actuated the emergency throttle on No. 1 engine while the beep was intermittent before he lost it to GROUND IDLE, he could have come home with two engines and those passengers could have kept their baggage. Even if he had not selected emergency throttle immediately, he still might have gotten No. 1 back from IDLE to FLY with it.

The writeup didn't say, but I certainly hope that as he was descending, he tried the throttle on No. 1 engine. In short, LT Knudson made a safe landing and I'd be the last one to argue, but he could have done better.

Capt Ray Norton
HMM-774



Put the Back on the Cover

NAS Point Mugu, CA – As I was distributing the SEP '76 issue of our magazine, I noticed the excellent message on the back cover ("FOD KILLS") and came up with a brainstorm that may warrant consideration. Seizing every opportunity to keep aviation safety before the troops, I addressed this particular issue back-side-up, which assured its exposure at least during distribution (kind of a floating safety poster). But, as is the habit and orientation of American publications, it is inevitably assigned to lie around front-side-up with the message on the back lost. If the back cover was printed upside down when these "posters" are used on the back, chances are 50-50 that they would remain floating safety posters while lying around. What say?

LT T. A. Green
Aviation Safety Officer

● You have an interesting and novel idea, but there is a strong case for continuing as we are. As you point out, the back cover often contains material that is very similar to a safety poster. In fact, many of the poster suggestions we receive from the Fleet are used for our back cover. However, there are 34 other pages of safety information in the publication, and the primary purpose of a cover is to attract attention so that people will pick up the magazine and, hopefully, read the contents. We have been fortunate to obtain high quality artwork for our covers, and we believe that these attract attention better than a "poster" type format such as we use on the back. The back cover is, however, the second most visible part of a magazine, and if someone picks up the magazine, he is going to see the back cover. Therefore, eye-catching covers encourage reading both the contents *and* the safety message on the back cover, so we want to stay with the technique that attracts the most people to pick up a magazine. Thanks for writing.

Tactical Readiness *Is* Paramount!

MCAS El Toro, CA – In reading LCDR Stauts' article ("Is Safety Really Paramount?," OCT '76), I was prematurely elated by erroneously anticipating from the title that someone was finally going to tell it the way it *should* be. I was more frustrated than ever when he terminated his article with "Safety really ought to be paramount."

Who are we kidding? The more we safety types try to deify ourselves with this misconception, the less service we do to our profession. *Tactical readiness is paramount!* If safety were paramount, we would be most successful by locking our aircraft in the hangar and our pilots in padded rooms. The trick is finding the fine line between risks and returns. Proficiency is like investing. It is a ratio of what is expected to be gained compared to what has to be paid or risked. The first tour pilot in his right mind *will* accept (and rightfully so) some shortcomings in aircraft perfection so he can gain experience and maintain his proficiency level rather than fall further behind. A maintenance control officer who will not permit less than perfect (but still safe) aircraft to fly is doing a disservice to the pilot who is cooling his heels in the readyroom and getting rusty.

Our goal is "professional warfare," and safety is only a tool in our hands. Safety is the tail of the dog – important, but nonetheless – the tail.

Maj T. L. Elser
ASO, MAG-13

Vol. 22 No. 7 NAVAIR 00-75-510

approach

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A Naval Safety Center Publication

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CREDITS/Our cover this month of FV-12 V/STOL was painted by Rockwell International artist Ronald D. Ferguson. The FV-12, featuring thrust-augmented wing technology, is capable of non-carrier shipboard operations.

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The density altitude was 9500 feet, the wind was light and variable, and the aircraft was heavy. The pilots determined that less than 8000 feet was needed for takeoff, but they didn't determine . . .

TOTAL AIRCRAFT PERFORMANCE

WHEN all fans are turning and there is enough concrete, anyone can make a takeoff as long as they don't exceed max gross. That isn't an absolutely true statement but it's reasonably accurate. The weasel words are "all fans are turning," "enough concrete," and "doesn't exceed max gross."

There are a few other factors of course which every pilot must dial in before trying to take off. We won't list them, because in the back of every model NATOPS manual there are a bunch of neat charts already made up. A pilot can enter the charts with the correct statistics and get all kinds of vital information. He might get an "OK, go, boy" or "Uh-oh, not this time, babes."

Now let's set the stage for an actual incident. A P-3 crew had spent a delightful time at a well known spa. The prices were right, transportation was readily available, entertainment was 3.8 on a 4.0 scale, and the dollies were outstanding. The moment of truth arrived, however, and the crew had to leave the land of make-believe to return to more noble but less exciting things such as musters, mickey mouse, and paper shuffling.

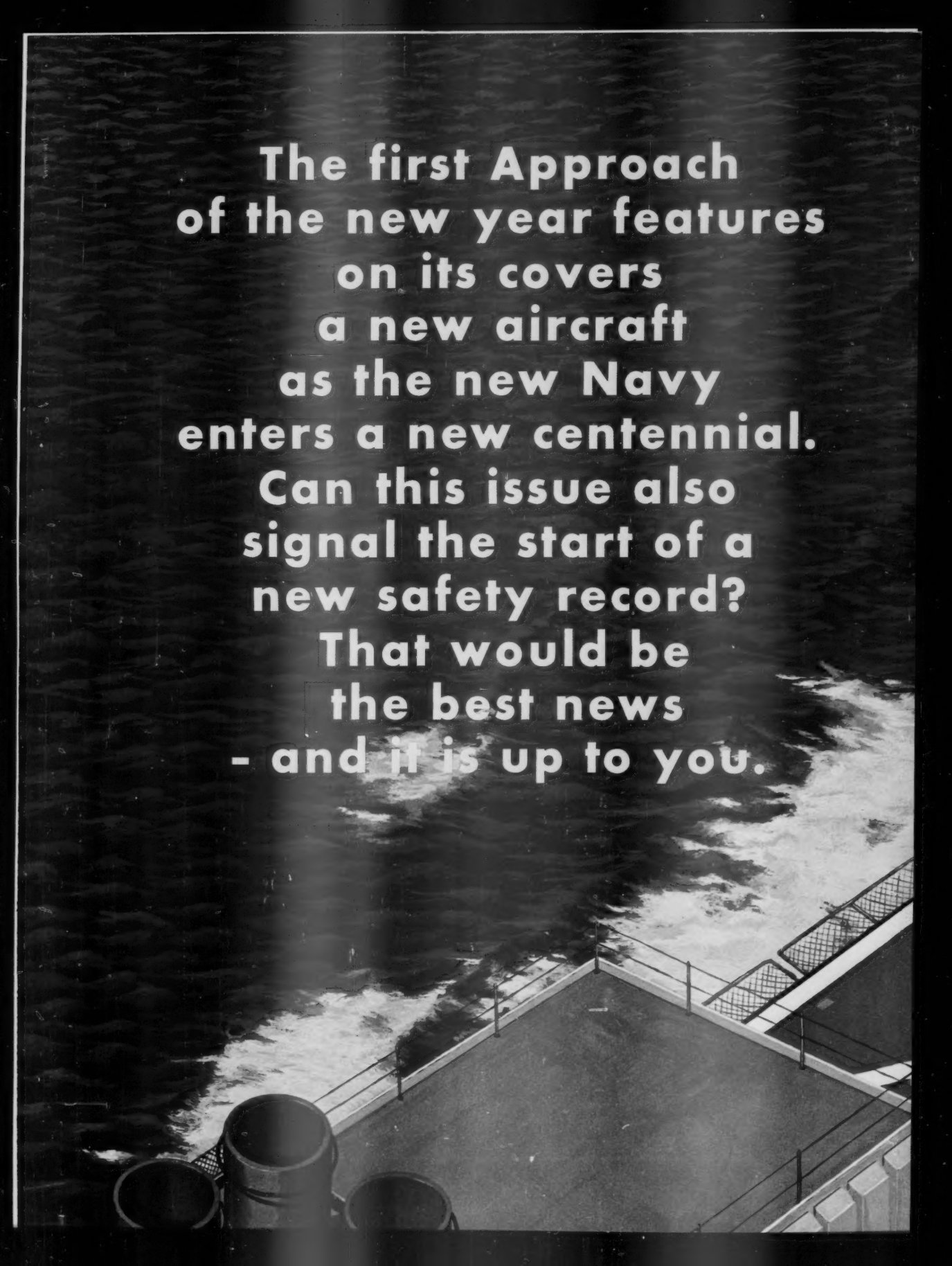
The field elevation was about 6000 feet, OAT was 35°C, the wind was 5 knots, the P-3 weighed 126,000 pounds (heavy), and the runway stretched out of sight for a couple of miles.

The pilots completed part of their homework. They ascertained they could take off. Terrain around the airport was fairly flat. They had no obstacles to be cleared, and computed refusal speed was greater than rotation speed. The book said, "Ok, go, boy!"

Upon retracting the gear and flaps, they each hunched a little forward in the seat and began talking to the aircraft. "Come on, baby, climb!" "Easy there, *Orion*, keep going!" They noted a rate of climb between 150-200 fpm at 160 knots. One said, "Please, fans, keep turning, and you sweet turbines keep burning. This is no time for any of you to get sick."

Just like quarterbacks from the Sonny Jurgensen school, they took what they could get. They didn't force anything, and slowly, almost reluctantly, the P-3 continued to climb. In due course (twice the time it ordinarily takes) they reached cruise altitude and returned to Homeplate.

Back at the ranch, after replacing the buttons in the seat cushions and in the comparative quiet and safety of the readyroom, they broke out the Manual. They found out that if they had lost an engine after takeoff, at best they could have had only a 30-fpm climb. They also discovered they could meet all criteria for a safe takeoff but have a negative rate of climb using normal rated power on three engines.

The CO took the pilots to task for failure to properly plan total, safe aircraft performance. It was not enough to merely compute the takeoff parameters; it was also necessary to compute rate of climb after takeoff. The CO commented, "Only through sustained professionalism and relentless attention to detail can we continue to operate safely on all missions and under all environmental conditions."

The first Approach
of the new year features
on its covers
a new aircraft
as the new Navy
enters a new centennial.
Can this issue also
signal the start of a
new safety record?
That would be
the best news
- and it is up to you.